Field Report
Badlands National Park

1.0 Summary

Badlands National Park (NP) comprises 244,000 of unique landforms and protected mix-grass prairie located in southwestern South Dakota. Although it has high levels of visitation during peak summer months, Badlands NP is not considered by the National Park Service (NPS) staff to be a destination park except for members of the scientific community who come to study paleontological or biological resources or geologic features.

For the majority of park visitors, a visit to Badlands is a two-hour stop on a longer trip to other destinations such as the Black Hills. Most visitors limit their experience to driving Badlands Loop Road (South Dakota Route 240), a 30-mile paved highway through the Park that parallels Interstate 90. Typically, visitors enter Badlands NP through one entrance and exit through another. As such, the need for alternative transportation systems (ATS) is rather limited.

The need for ATS is expected to grow, however, with the recent creation of a new NPS site nearby. In November 1999 President Clinton signed legislation establishing the Minuteman Missile National Historic Site (NHS), consisting of a Cold War-era nuclear missile silo and launch control facility. These will be transferred to the NPS in November 2001, and by 2005 should receive their first visitors. Badlands and Minuteman are within a few miles of each other, so administrative and management functions can be shared, saving taxpayer money. Because access to the launch control facility will be limited to ranger-led tour groups only, ATS is expected to play an important role in bringing visitors to the site.

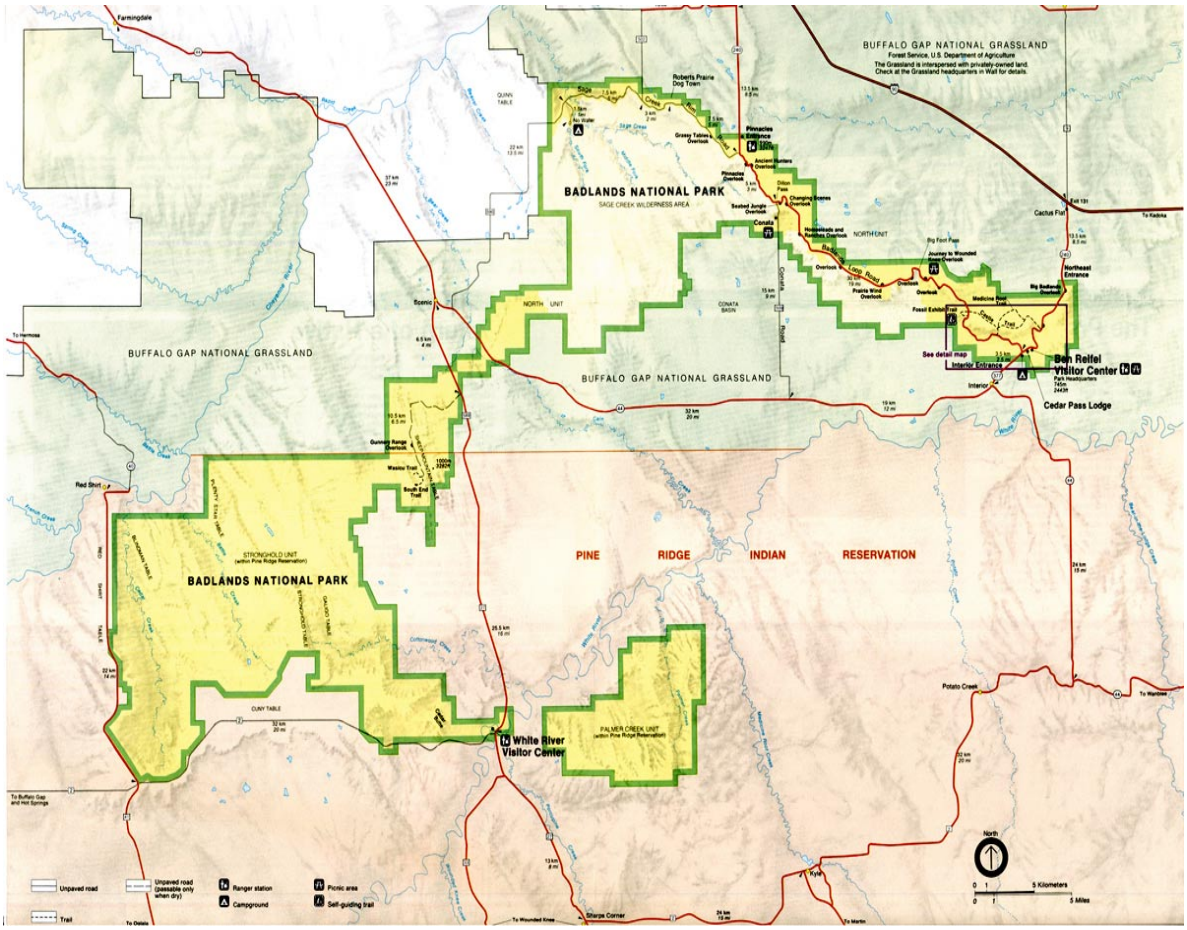
2.0 Background Information

2.1 Location

Figure 1 shows the location of Badlands NP while Figure 2 shows the layout of features within the Park. The Park is located in southwestern South Dakota, approximately 80 miles east of Rapid City and approximately seven miles south of the town of Wall. The Park consists of three separate units: the North Unit, the Stronghold Unit, and the Palmer Creek Unit. Although access is provided at multiple locations, most visitors access the Park at the Northeast Entrance Station (from I-90 Exit 131 via South Dakota Route 240) or at the Pinnacles Entrance Station (from I-90 Exit 110 via South Dakota Route 240).

Figure 1. Park Gateway Sign

Figure 2. Layout of Badlands National Park



2.2 Administration and Classification

Originally established as Badlands National Monument in 1939, the area was redesignated as Badlands NP in 1978. The Park is managed by the NPS. The Park Superintendent is William Supernaugh. The Stronghold and Palmer Creek Units are located within the Pine Ridge Indian Reservation and are managed by the NPS under a Memorandum of Agreement with the Oglala Sioux Tribe. There is no public access into the Palmer Creek Unit, and only limited access into the Stronghold Unit.

2.3 Physical Description

Badlands National Park

Badlands NP consists of nearly 244,000 acres of sharply eroded buttes, pinnacles and spires (see Figure 3) blended with the largest protected area of mixed-grass prairie in the United States. Sixty-four thousand acres are designated official wilderness and serve as the site of the reintroduction of the black-footed ferret, the most endangered land mammal in North America. Badlands NP also contains the world's richest Oligocene epoch fossil beds, dating from 23 to 35 million years old.

Figure 3. Badlands' Buttes, Pinnacles and Spires

The North Unit, which is the best known and most accessible, includes the Loop Road and numerous scenic overlooks, the Ben Reifel Visitor Center (open year-round), Park Headquarters and Cedar Pass Lodge. The Stronghold Unit contains the White River Visitor Center (see Figure 4), open June through August. The Palmer Creek Unit is not accessible to the public.

Badlands NP is bordered on several sides by the Buffalo Gap National Grassland which includes over 590,000 acres of prairie managed by the United States Forest Service (USFS).

The National Grassland, used primarily for grazing, also provides hunting, fishing and other recreational opportunities. A USFS Visitor Center is located in Wall, South Dakota.

Minuteman Missile National Historic Site

Few visitors to Badlands knew that until the start of the 1990s, their drive along Interstate 90 in South Dakota had taken them through the 44th Strategic Missile Wing of Ellsworth Air Force Base. Within a few miles of the roadway, 150 Minuteman missiles lay buried deep beneath the ground in concrete silos, their presence marked only by dusty access roads leading to small, fenced-off compounds. Nor did visitors suspect that the drab, single-story buildings they had passed by were the visible part of underground launch control centers where Air Force personnel kept a 24-hour vigil. The sprawling complex remained on alert for nearly 30 years, until the Strategic Arms Reduction Treaty (START) was signed by President George Bush and Soviet leader Mikhail Gorbachev in 1991. Under the terms of the treaty, the missiles were removed from their silos, and in 1994 the 44th Missile Wing was officially deactivated. The last site was destroyed in 1996, leaving a single launch facility and silo to be preserved as Cold War historic sites.

The launch facility , known as Delta Nine, occupies 1.6 acres one-half mile southwest of Interstate 90 at Exit 116 and six miles from the town of Wall. It consists of a silo 12 feet in diameter and 80 feet deep made of reinforced concrete with a steel-plate liner. The door to the silo will be welded and fitted with a transparent roof, and an unarmed missile placed inside. Not only will this permit visitors to look down on the missile, but satellites will be able to verify that the site is not operational, and hence in compliance with START.

The launch control facility, known as Delta One, is about 11 miles away. It occupies approximately six acres 1.7 miles north of I-90 at Exit 127. It consists of an aboveground building containing a kitchen, sleeping quarters, and life support equipment, and a launch control center buried 31 feet deep and connected to the main building by an elevator.

Figure 4. National Park Visitor Center

2.4 Mission and Goals of Badlands NP

The legislated purposes of Badlands NP are to:

- Protect the unique landforms and scenery of the White River Badlands for the benefit, enjoyment, and inspiration of the public;
- Preserve for science and interpret for the public the massive vertebrate fossil beds and other paleontological, zoological, and geological resources of the White River Badlands so as to foster an understanding of their significance; and
- Interpret the history and development of the science of paleontology that has taken place at the White River Badlands.

2.5 Visitation Levels and Visitor Profile

Badlands NP accommodated approximately 1.1 million visitors in 1998 with 80 percent arriving during June, July and August. Overall visitation has been relatively stable over the last 15 years. Most visitors are from the upper Midwest or the eastern part of the United States. Most visitors arrive in family groups, stay less than one day, and are visiting the Badlands as part of a longer trip. A significant number of visits to Badlands are unplanned (i.e., initiated after seeing signs along Interstate 90). Most visitors enjoy the scenery as they drive through the Park, stopping occasionally for a wayside exhibit or to take photographs.

Badlands NP experiences a sharp increase in daily visitation during the Sturgis Motorcycle Rally held during the first week in August. Other events generally have little impact on visitation.

3.0 Existing Conditions, Issues and Concerns

3.1 Transportation Conditions, Issues and Concerns

The primary paved road in the Park is the Badlands Loop Road (Route 240) which extends for 30 miles between the Northeast and Pinnacles Entrance Stations and is maintained by the NPS. Some 20 developed overlooks lie along this route. The other major paved access to the Park is the NPS-maintained road north of the terminus of South Dakota Route 377. Graveled roads provide access to some outlying areas of the Park. Five trails, varying from one-quarter mile to eight miles in length, explore park features.

For the majority of park visitors, a visit to Badlands NP consists of a drive (one direction only) of Loop Road. Typically, visitors enter the Park at one park entrance and exit the Park through another. For example, the Park brochure encourages westbound travelers on I-90 to use exit 131 and enter the Park at the Northeast Entrance Station. After passing

through the Park via Loop Road, travelers rejoin I-90 at exit 110 in Wall. Eastbound travelers should do the reverse: begin at exit 110 and end at exit 131. Thus, the physical layout of the Park and roadways generally makes Badlands NP automobile-dependent.

Visitors often comment that they do not hike Castle and Medicine Root Trails because the layout of the trail system forces them either to double back and return the same way they came, or to emerge on Badlands Loop Road (Route 240) five miles from where their cars are parked. If a shuttle service existed to bring them back to their cars, they would be more likely to use the trail.

There is no public transportation to the Park or within the Park. However, commercial bus service to points east and west is available from the towns of Wall and Kadoka, both located along I-90. Badlands NP is receiving an increasing amount of tour bus traffic with up to 12 buses per day and up to five buses at one time at the Ben Reifel Visitor Center. Most of the buses are senior citizen tour groups or international tour groups. Badlands NP also receives a moderate number of school groups, mostly from the Pine Ridge Indian Reservation or from the greater region.

Traffic hazards along Loop Road include drivers stopping along the road or driving slowly to view the scenery or wildlife. The combination of recreational vehicles, cars, bicycles and pedestrians on the road can be dangerous. Parking areas at most of the way-side stops are inadequately sized.

The Badlands NP road system suffers from soil movement, poor drainage, severe erosion, and slumps. In many places the roads lack an adequate base course. Approximately 10 miles of Loop Road is scheduled for an asphalt overlay in the year 2000. In addition, improvements are planned for the inbound approach to the Northeast Entrance Station to relieve congestion during peak visitation periods.

Route 240 is a state scenic byway, and is expected by the end of 2001 to become a national scenic byway as well. This makes it both difficult and undesirable to widen Badlands Loop Road or construct additional parking lots within the Park.

Although additional access roads or ATS to other parts of the North Unit and to the Stronghold and Palmer Creek Units could possibly enhance the visitor experience, the construction of such roads or service would likely result in adverse impacts to the Park's natural and cultural resources.

Concerning access to the future Minuteman Missile National Historic Site, NPS officials believe that excessive parking around Delta One and Delta Nine would compromise the visitation experience. The facilities were, and should remain, remote and isolated in both look and feel. Even if parking were desired around Delta Nine, it would be difficult to construct because the missile silo abuts private land.

3.2 Community Development Conditions, Issues and Concerns

The town of Wall, located along I-90 approximately seven miles from Badlands NP, serves as a gateway community to the Park (see Figure 5). Wall (population 850) is home to Wall

Drug, a souvenir/retail enterprise encompassing a full square block of the town. Gross annual revenue of Wall Drug is estimated to be approximately $11 million. Many visitors to Badlands also visit Wall Drug or other visitor attractions within Wall. Currently, however, there are no plans by the community to provide shuttle service or tour service to Badlands NP from Wall.

Figure 5. Town of Wall

Although Badlands NP is bordered on several sides by the Buffalo Gap National Grassland, there is little visitor-related interaction between the units. The USFS Visitor Center, located in Wall, provides literature and other information regarding Badlands NP but does not generate sufficient visitation to justify a transit connection. However, the USFS Visitor Center could serve as an intermediate stop on a circulator shuttle between the other attractions within Wall (e.g., Wall Drug), Badlands NP, and Minuteman Missile NHS (see Section 5.2).

3.3 Natural or Cultural Resource Conditions, Issues and Concerns

The primary resources of Badlands NP are 1) the spectacular scenery of the archetypical Big Badlands, 2) unparalleled late Eocene and Oligocene mammal fossil deposits, 3) the finest extant mixed-grass prairie, and 4) cultural artifacts dating from 11,000 years ago to the present day. In general, none of the primary resources of Badlands NP would be enhanced through ATS. General resource-related issues include:

- Illegal collection of archeological, paleontological, biological and geological resources occurs.
- Helicopter tours over the Park disturb the visitor experience and wildlife.

- Badlands NP is the premiere site in the National Black-Footed Ferret Recovery Program and is home to approximately 600 bison and 250 bighorn sheep. Some visitors expect a "safari"-type experience.

- Visitors are allowed to hike anywhere within the Park, which results in damage to natural and cultural resources.

3.4 Recreation Conditions, Issues and Concerns

Most visitors to Badlands NP enjoy the scenery as they drive through, stopping occasionally for a wayside exhibit at an overlook or to take photos. Some visitors walk the self-guided trails. Other recreational activities include cross-country backpacking, horseback riding, and bicycling. Each of these is limited by the rugged terrain, extreme weather conditions and the lack of potable water in the backcountry of the Badlands. In general, recreational activities within Badlands NP would not be enhanced through ATS.

4.0 Planning and Coordination

4.1 Unit Plans

The overall General Management Plan (originally titled as a Master Plan) for Badlands NP was completed in 1978. The General Management Plan was revised in 1985 to address the Stronghold and Palmer Creek Units. A new plan is scheduled for preparation in the year 2001. The Long-Range Interpretive Plan for Badlands NP was completed in 1998.

4.2 Public and Agency Coordination

Partnerships play an important role in the success of the Badlands NP. These include partnerships between the NPS and:

- The Oglala Sioux Tribe, which operates the NPS-owned Cedar Pass Lodge under the terms of a concession contract;

- The Badlands National Historical Association (BNHA), which maintains two public sales outlets in the Park; and

- The USFS, which operates the surrounding Buffalo Gap National Grasslands.

The NPS has also entered into numerous cooperative agreements/special use permits with other agencies, utility companies and private groups with respect to law enforcement, bison management, utilities, roadway maintenance and other elements of the day-to-day operation of the Park.

In recognition that many park issues transcend park boundaries, requiring the support of local communities, the Long-Range Interpretive Plan for Badlands NP is expected to include a community outreach program. Elements of the program will include:

- Open houses, meetings, and special events;
- Newspaper articles, newsletters, traveling exhibits, and cable television programs;
- Recruitment of local residents for job openings and interpretive programs;
- Cooperation with state travel and transportation divisions, local chambers of commerce and other nearby attractions; and
- Cooperation with local universities and schools.

5.0 ATS Needs

Presently, there is only a limited need for alternative transportation systems to or within Badlands NP. However, when Minuteman Missile NHS opens to the public in approximately 2005, a shuttle system serving both NPS sites might prove desirable and cost-effective. NPS officials have noted that abundant parking is available at Wall, and have suggested that a circulator shuttle originating there could loop through Badlands following Route 240, make one or more stops at facilities associated with Minuteman Missile NHS, and return to Wall on Interstate 90.

Four transit alternatives, designed to serve Badlands NP during the peak season only, have also been considered at various times. These are:

- A circulator shuttle operating back and forth on Badlands Loop Road between the Pinnacles Entrance and the Northeast Entrance to the Park;
- A privately-owned and operated circulator shuttle from Wall, entering the Park at the Pinnacles Entrance, exiting at the Northeast Entrance, and returning to Wall via I-90;
- An educational tour shuttle operating on a fixed schedule and originating at the Ben Reifel Visitor Center within the Park; and
- A point-to-point shuttle between trailheads within the park.

Of these options, the first is considered impractical because visitors would be required to retrace their path back to their vehicle (i.e., see everything twice). The third and fourth options are likewise unsatisfactory, because they would do little to reduce traffic volumes within the Park. Since the creation of Minuteman Missile NHS, all four transit alternatives appear to have been superceded.

6.0 Bibliography

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7.0 Persons Interviewed

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Marianne Mills, Interpretation & Cultural, Badlands National Park

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Glen Livermont, Ranger, Badlands National Park

Rachel Benton, Administration, Badlands National Park

Galen Livermont, RT&E Supervisor, Badlands National Park

Marianne Mills, Chief of Resource Education, Badlands National Park, January 16, 2001